

The Great Late Atari Computer Club Newsletter

February 1981, Vol. 00000001 No. 00000001

MEMO PAD:

Meeting schedule- Feb. 19, 1981
Mar. 19, 1981
Apr. 16, 1981
May 14, 1981

computer comments

Meeting Location- Lyceum
(Feb. meeting) 28657 Hoover Road
Warren, Michigan 48093
(313)574-2444

Meeting Agenda- 7:00-8:00 SHOW & Tell
8:00-8:20 Announcements
8:20-8:40 Business Meeting
8:40-9:30 Presentation
9:30-10:00 Q & A Forum

Interim Officers- President- Ashby Woolf
Program- Gary Luzier
Librarian- Mark Davids (Disk Systems)
Rodney Graham (Tape Systems)
Newsletter- Jon Earl

DISK FILE (Last Meeting Notes):

Club Name Contest- At the February meeting we will vote on our club name, the best suggestion will win their choice of the following:

Super Breakout
Computer Chess
3D Tic Tac Toe
Telelink I
Basketball
Space Invaders

Club Schedule-	Jan. -Feb.	Get commitments for work Establish working calendar Begin Newsletter Establish Membership Req's. Set Dues Develop Initial Program Series Select Organization Name
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DISK FILE (con't.)

Mar. -Apr.

Complete Charter

Purpose

Organization

Procedures

May

Elect Officers

Jun. -Aug.

Consider connections with other
organizations

After presentation and discussion of the above topics we heard a brief presentation from Jim Rarus of SEMCO on the Computer Electronics Show held last month in Las Vegas. Jim also delivered a stirring invitation for us to join SEMCO instead of forming our own group. Anyone interested in SEMCO can reach them at P. O. Box 02426, Detroit, MI 48202.

Another topic of discussion was the missing GTIA chip anyone with information as to the whereabouts or identity of this missing link should inform the group as soon as possible.

CARTRIDGE (programs to inform and entertain);

Characters displayed by the Atari are stored in memory. The display processor is told where to find the data to be displayed. The following very short program instructs the display processor to display the memory location \$0 through \$959 with with the contents of each location being interpreted as a character. These locations contain many important operating system variables.

```
10 A=PEEK(560)+PEEK(561)*256+4
20 POKE A,0
30 POKE A+1,0
```

Line 10 finds the location in memory which tells the display processor where to find the data to be displayed.

Line 20 & 30 Set these locations to 0. Whereby the display processor fills the screen (960 char's.) with memory.

When you run the program you can watch the clock (\$18-20) at the top of the screen. Location 20 is being incremented by 1 60 times a second. Location 19 is incremented every time location 20 overflows (256/60 sec.).

CARTRIDGE (con't.)

Press a few keys and watch what happens. See if you can identify other features, such as the timer keeping track of how long a key is pressed. Or, the Attract timer.

KEYBOARD (questions, answers and suggestions):

Remember not to buy too much memory when buying a new system. The left cartridge overlays the top 8k of memory on a 48k machine. The right cartridge will overlay 16k.

"ATARI" is Japanese and an exclamation of triumph, i.e. "checkmate!".

Correction from the front page C. E. S. was Consumer Electronics Show, Jan. 8-11, 1981.

Many interesting tidbits are listed each month on CompuServe, a copy is available at the meeting.

We want this group to be both active and effective. So please give us your input.

MEMBERSHIP APPLICATION

Name _____ Phone _____

Street _____

City _____ State _____ Zip _____

Company Name (if applicable) _____

System Description _____ Disk/Tape _____

Suggestion? _____

Send (or bring) to: The Great Unknown (Atari Club)
% LYCEUM
28657 Hoover Road
Warren, MI 48093

ANSWERS TO FEEDBACK

(Q)Where did the name ATARI come from?

(A)The creator of "PONG" christened his new company "ATARI". The name is Japanese and is an exclamation of triumph like CHECKMATE!

(Q)I do not have a printer. How

Y. J

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HjCompuServe

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can I get a copy of "DISCOVERY"?

(A)I suggest you check with your dealer or a friend to dump a

copy to their printer.

(Q)How can I get lower case on CompuServe?

(A)You may have to adjust your terminal default parameters used by CompuServe. Check selection number 5 on the main CompuServe menu. Once

Y. J

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HjCompuServe

Page ATR-45

properly set just press the CAPS-LOWR key as in normal use to get lower case.

(Q)How many tracks are formatted on the 810 disk drive?

(A)40, check your DOS reference manual.

(Q)Where can I get technical documentation?

(A)As mentioned earlier this information is available through Customer Service.

Y. J

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HjCompuServe

Page ATR-46

(Q)When will more software be available?

(A)There is actually quite a lot of ATARI software available.

Most of the popular software

developers have software for

Another correction for those of

Y. J

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HjCompuServe Page ATR-73

the information on
player-missile graphics in
HjCompuServe Page ATR-74

you who may have read the issue

when it first appeared is that
the Hardware/OS manual must be
ordered through CusW

+ot issue for

Customer Service toll-free
number.) WARNING: The
Hardware/OS Manual contains
highly technical information and
Y. J

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HjCompuServe Page ATR-72

DISCOVERY

February 1981

This month's features will
include users group information,
a CES report, products updates,

and a feature article on color
and display list interrupts.
By now some of you may have
players and missiles moving all

over the screen. In addition to
Y. J

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HjCompuServe Page ATR-73

the information on
player-missile graphics in the
last issue, several popular
computer magazines featured
articles on using ATARI
graphics. If you had problems
with the listing of the
player-missile program last
month check the listing again.
Corrections have been made to
that issue.

Another correction for those of

Y. J

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HjCompuServe Page ATR-74

... you who may have read the issue

when it first appeared is that
the Hardware/OS manual must be
ordered through Customer
Service. Unfortunately the

staff here at DISCOVERY is not able to process requests. (Refer to last issue for Customer Service toll-free number.) WARNING: The Hardware/OS Manual contains highly technical information and Y. J
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HjCompuServe Page ATR-75

is not recommended for beginners. We would like to remind our readers that the MicroNET Users

guides are available from CompuServe. Please use their FEEDBACK facilities for ordering. Y. J
Key <ENTER> for next pageY.=!
HjCompuServe Page ATR-76

U S E R S G R O U P S

We have received word from more

users groups:

Madison ATARI User's Group
%Magic Lantern Computers
3313 University Avenue
Madison, WI 53705
Contact: Steve Hanson
(608)233-2026

Y. J
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West Valley ATARI Users Group
Contact: George Barti
20213 Parthenia St.
Canoga Park, CA 91306
(213) 998-0769

Bay Area Users Group
% Foothill College
12345 El Monte Road
Los Altos Hills, CA 94022
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Panama ATARI Users Group
Contact: Dr. Mel Boreham
PSC Box 417
APD Miami, 34008
Y. J

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It is with great pleasure that DISCOVERY introduces Earl Rice, Marketing Manager of Users Group

joined ATARI to coordinate activities to support users groups. He will also be taking

over editorship of DISCOVERY. Earl has a background in both hardware and software engineering and admits he always has been a hobbyist at heart. Y. J

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CES REPORT

The Winter Consumer Electronic Show was held in Las Vegas, January 8-11. ATARI had one of

the most popular booths at the show. In addition to the Personal Computer products, ATARI had their home game products on display, including a new holographic game called Y. J

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COSMOS, several new game cartridges, and a radio-controlled version of their popular home Video Computer System. Demonstrations were available on the ATARI Accountant and the ATARI Word Processor. The ATARI Accountant is an excellent package for small businesses and does not require

a computer professional or Y. J

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HjCompuServe Page ATR-82

accountant to operate. The General Accounting System can be tailored to individual needs, processing 50 to 750 general ledger accounts and 2,700 journal entries per month. The

Accounts Receivable System will process up to 300 customers and

1,200 receivable transactions per month. The Inventory Control System is capable of tracking up to 1,000 individual

Y. J
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inventory items.
The ATARI Word Processor is a product many of you have been waiting for. You can create letters, reports, or other documents. Features include a horizontal scrolling text window, page layout screen, and

many editing features. The program takes advantage of the special print capabilities of the ATARI 825 Printer.

Y. J
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HjCompuServe Page ATR-84

For the Personal Interest category, Conversational Spanish was previewed with the promise of Conversational French, German, and Italian.

If you would like to exercise more than your fingers at the keyboard the Personal Fitness Program is just what you may need. The program adjusts the exercise program to your own level and allows you to

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graphically see your progress. In the educational area a new simulation has been added to the list, Scram (A nuclear power plant simulation). The program

features a multi-colored display of the basic components, operating temperatures, and system status as well as sound effects like the whirl of the turbine.

Y. J
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In the Entertainment category two new entries, Asteroids and Missile Command may rival Star Raiders. The games are based on ATARI's already successful arcade versions. Asteroids features all the action of its arcade predecessor plus color, extra options, and multi-player selections. Missile Command looks and plays like the coin-op version as you defend 6 cities

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products should be available around mid-year.

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ANNOUNCEMENTS

The ATARI 822 Thermal Printer is shipping now and the CX70 Lightpen should be shipping this month.

The 815 Dual Density Drive should be out sometime in the second quarter. Software due out this quarter includes Assembler Editor (this

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may be shipping by the time you

read this), Energy Czar, Bond Analysis, and Stock Charting. Keep a sharp look out in personal computer magazines as more and more independent vendors are producing software and hardware for your ATARI Personal Computer.

Y. J
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GETTING MORE COLOR OUT OF YOUR ATARI COMPUTER

One of the strongest features of ATARI Personal Computer Systems

is the graphic capabilities. However, with 128 colors (16 colors * 8 shades each) to chose from it may seem limiting that in graphics mode 8 you can only

display only 2 colors (1 color,

Y. J
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HjCompuServe Page ATR-91

2 luminences).

There are several ways to increase the number of colors you can display. The following

are some examples:

(1) You may have noticed that if

and lines on odd coordinates

are not the same color. This is due to the fact that the

Y. J

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HjCompuServe Page ATR-92

way your home TV set (NTSC) processes the incoming video. The resulting blue-orange or

violet-green lines are known

as color artifacts. If you are creative you can take advantage of these.

The following program should help:

Y. J

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HjCompuServe Page ATR-93

```
10 GRAPHICS 8
12 SETCOLOR 2,0,0
14 SETCOLOR 1,0,14
15 COLOR 1
20 FOR I=0 TO 10 STEP 2
30 PLOT I,0:DRAWTO I,10
```

Y. J

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```
40 NEXT I
50 FOR I=13 TO 23 STEP 2
60 PLOT I,0:DRAWTO I,10
70 NEXT I
80 FOR I=26 TO 46
90 PLOT I,0:DRAWTO I,10
100 NEXT I
```

Y. J

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(2) Player-missile colors are independent of screen colors. If you use them all you can add 4 to 5 colors of your choice. (Check last issue for player-missile information.)

(3) Another trick is to set up the graphics mode and change

the graphics mode index byte

(location 87 decimal).

POKing 87 with 9 give a very

Y. J

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HjCompuServe Page ATR-96

interesting effect.

The following program is an

```
10 GRAPHICS 8
```

```
20 POKE 87,9
```

```
30 FOR I=0 TO 15
```

```
40 COLOR I
```

```
50 PLOT 0,I:DRAWTO 79,I
```

```
60 NEXT I
```

Y. J

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Most of the colors printed out appear as dotted lines. If you

notice carefully however, some pixels are shifted left and other shifted right.

Y. J

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If you alternate these lines you can produce some interesting colors.

The following program is an example of this:

Y. J

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```
10 GRAPHICS 8
15 SETCOLOR 2,0,0
20 POKE 87,9
30 COLOR 7
40 FOR I=10 TO 30 STEP 2
50 PLOT 0,I:DRAWTO 79,I
60 NEXT I
70 COLOR 13
80 FOR I=11 TO 31 STEP 2
90 PLOT 0,I:DRAWTO 79,I
100 NEXT I
```

Y. J

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(Change lines 30 and 70 to COLOR 6 and COLOR 9 or COLOR 3 and COLOR 12.)

If you use different colors you

may be able to blend even more colors.

Y. J

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(4) A final way to add colors is

to change color "on-the-fly". You can interrupt the system

and change the color as it refreshes the screen. This is accomplished by setting up a display list interrupt.

The Rainbow program that

issue that displays all 128 colors at once uses this technique. In fact you can
Y. J
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HjCompuServe Page ATR-102

actually change the color of

a line as it crosses the screen, but the difficulty is too involved to discuss here. This method could be used effected to change the color of the background to separate the sky from land. Display list interrupts require assembly language to be fast enough, however, you can set one up in
Y. J
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BASIC and jump to the routine. An introductory explanation on using display list interrupts is in the following section. With a little creativity you can generate more color on your computer than you may have thought. There may be variations or other methods that you may discover.
Y. J
Key <ENTER> for next pageY.=!
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DISPLAY LIST INTERRUPTS

Understanding how the display list works and how to control it is basic to mastering the power

of the graphic capabilities of the ATARI computer. To begin, the display list is really a small program created in RAM everytime a GRAPHICS command is executed. The instructions that
Y. J
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HjCompuServe Page ATR-105

make up the display list are used by a special purpose, custom microprocessor call ANTIC. The display list set up

the address of the display memory, how many scan lines will

displayed. The address of the display list can be found with the following formula:
$$\text{PEEK}(560) + \text{PEEK}(561) * 256$$

Y. J
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If you change certain bytes, especially the mode bytes, you can mix GRAPHICS modes, enable horizontal or vertical scrolling, or set up display list interrupts. It would be difficult to try to cover all these features in one newsletter so display list interrupts will

be the topic to introduce this month.
As its name implies a display
Y. J
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list interrupt is just that; an interrupt during the display processing that allows the program to do some other task and then return. Useful applications could include fetch and store routines, changing the character set pointer, and changing the color of the background or graphic object.

The first step from BASIC after the GRAPHICS mode command is to

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find the beginning of the display list. As previously mentioned this information is located by:
$$\text{PEEK}(560) + \text{PEEK}(561) * 256$$

Next we add an offset where we wish the interrupt to occur. The mode byte must now be changed. This is accomplished by PEEKing that byte, adding 128 (decimal), and then POKing the new number back in (the
Y. J
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HjCompuServe Page ATR-109

Hardware/OS manual has a chart listing the proper bytes). The routine which will be executed during the interrupt

example we will change the background (playfield 2) in GRAPHICS 9. In assembly code the routine looks like this:

Y. J
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HjCompuServe Page ATR-110

PHA -saves accumulator value
LDA #224 -loads the new color
STA \$D40A-store the value in WSYNC halts the processor until the end of the line so that the change is made during horizontal blanking
STA \$D01B-stores the color in the color register

Y. J
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HjCompuServe Page ATR-111

which colors the background (playfield 2)
PLA -restores the accumulator
RTI -returns from the interrupt

Y. J
Key <ENTER> for next pageY.=!
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To use the routine from BASIC it must be converted to decimal and POKEd into RAM where it will not be altered by the program. Page 6 is

an excellent place (1536 decimal).
The interrupt vector must be set to point where the routine is. This is done by POKing the address into 512 and 513 (low byte, then high byte).

Y. J
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HjCompuServe Page ATR-113

Finally a POKE 54286,192 tells

Bruce slung
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Bruce